

RAW SEQUENCE LISTING

EFS

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Information Center (STIC) no errors detected.

Application Serial Number: 08/434,105A
Source: 1FW16
Date Processed by STIC: 3/14/07

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IFW16

RAW SEQUENCE LISTING

DATE: 03/14/2007

PATENT APPLICATION: US/08/434,105A

TIME: 14:54:04

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3 <110> APPLICANT: Fischhoff, et al.
 5 <120> TITLE OF INVENTION: SYNTHETIC PLANT GENES AND METHOD FOR PREPARATION
 7 <130> FILE REFERENCE: 28079/41786
 9 <140> CURRENT APPLICATION NUMBER: US 08/434,105A
 10 <141> CURRENT FILING DATE: 1995-05-03
 12 <150> PRIOR APPLICATION NUMBER: US 07/959,506
 13 <151> PRIOR FILING DATE: 1992-10-09
 15 <150> PRIOR APPLICATION NUMBER: US 07/476,661
 16 <151> PRIOR FILING DATE: 1990-02-12
 18 <150> PRIOR APPLICATION NUMBER: US 07/315,355
 19 <151> PRIOR FILING DATE: 1989-02-24
 21 <160> NUMBER OF SEQ ID NOS: 40
 23 <170> SOFTWARE: PatentIn version 3.3
 25 <210> SEQ ID NO: 1
 26 <211> LENGTH: 1743
 27 <212> TYPE: DNA
 28 <213> ORGANISM: Artificial sequence
 30 <220> FEATURE:
 31 <223> OTHER INFORMATION: Synthetic nucleotide sequence encoding Btk HD-1 insecticidal
 protein
 32 (cry1Ab), described in Example 1, and set forth in the lower line of
 33 Figure 2
 35 <400> SEQUENCE: 1
 36 atggctatag aaactgggta caccccaatc gatatttctt tgctgctaac gcaatttctt 60
 38 ttgagtgaat ttgttcccgg tgctggattt gtgttaggac tagttgatat tatctgggga 120
 40 atttttgggc cctctcaatg ggacgcattt cttgtacaaa ttgaacagct catcaaccag 180
 42 agaatcgaag agttcgctag gaatcaagcc atttctagat tagaaggact aagcaatctt 240
 44 tatcaaattt acgcagaatc ttttagagag tgggaagcag atcctactaa tccagcatta 300
 46 agagaagaga tgcgtattca attcaatgac atgaacagtg cccttacaac cgctatttct 360
 48 ctttttgcag ttcaaaatta tcaagttcct ctctctccg tgtacgttca agctgccaac 420
 50 ctccacctct cagttttgag agatgtttca gtgtttggac aaagggtggg atttgatgcc 480
 52 ggcactatca atagtcgtta taatgattta actaggctta ttggcaacta tacagatcat 540
 54 gctgtacgct ggtacaatac gggattagag cgtgtatggg gaccggattc tagagattgg 600
 56 atcaggtaca accagttcag aagagagctt acactaactg tattagatat cgttttctcta 660
 58 tttccgaact atgatagtag aacgtatcca attcgaacag tttcccaatt aacaagagaa 720
 60 atttatacaa acccagtatt agaaaatttt gatggtagtt ttcgaggctc ggctcagggc 780
 62 atagaaggaa gtattaggag tccacatttg atggatatac ttaatagtat aaccatctat 840
 64 acggatgctc atagaggaga atactactgg tccggtcacc agatcatggc ttctcctgta 900
 66 gggttttcgg ggccagaatt cacttttccg ctatatggaa ctatgggaaa tgcagctcca 960
 68 caacaacgta ttgttgctca actaggctcag ggcgtgtata gaacattatc gtccacctta 1020
 70 tatagaagac cttttaacat cgggatcaac aaccaacaac tatctgttct tgacgggaca 1080
 72 gaatttgctt atggaacctc ctcaaatttg ccatccgctg tatacagaaa aagcggaaacg 1140
 74 gtgatttcgc tggatgaaat accgccacag aataacaacg tgccacctag gcaaggattt 1200

76 agtcacgat taagccatgt ttcaatgttt cgttcaggct ttagtaatag tagtgtaagt 1260

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78 ataataagag ctctatggtt ctcttggtata catcgtagtg ctgagttcaa caacatcatc 1320
80 ccttcatcac aaatcaccca aatccactc accaagtcta ctaatcttgg ctctggaact 1380
82 tctgtcggtta aaggaccagg atttacagga ggagatattc ttcgaagaac ttcacctggc 1440
84 cagatttcaa ccttaagagt aaatattact gcaccattat cacaaagata tcgggtaaga 1500
86 attcgctacg cttctaccac aaaccttcag ttccacacat caattgacgg aagacctatt 1560
88 aatcagggga atttttcagc aactatgagt agtgggagta atttacagtc cggaagcttt 1620
90 aggactgtag gttttactac tccgtttaac ttttcaaag gatcaagtgt atttacgtta 1680
92 agtgctcatg tcttcaattc aggcaatgaa gtttatatag atcgaattga atttgttccg 1740
94 gca 1743
97 <210> SEQ ID NO: 2
98 <211> LENGTH: 1743
99 <212> TYPE: DNA
100 <213> ORGANISM: Artificial sequence
102 <220> FEATURE:
103 <223> OTHER INFORMATION: Native Btk HD-1 nucleotide sequence encoding Btk HD-1 toxin
104 protein (Cry1Ab) from amino acid 29-607 as described in Example 1
105 & set forth in the upper line of Figure 2, & includes synthetic
106 sequence encoding N-terminal Met-Ala
108 <400> SEQUENCE: 2
109 atggctatag aaactgggtta caccccaatc gatatttctt tgtcgctaac gcaatttctt 60
111 ttgagtgaat ttgttcccggtg tctgtgattt gtgttaggac tagttgatat aatatgggga 120
113 atttttggtc cctctcaatg ggacgcattt cttgtacaaa ttgaacagtt aattaaccaa 180
115 agaatagaag aattcgctag gaaccaagcc atttctagat tagaaggact aagcaatctt 240
117 tatcaaattt acgcagaatc ttttagagag tgggaagcag atcctactaa tccagcatta 300
119 agagaagaga tgcgtattca attcaatgac atgaacagtg cccttacaac cgctattcct 360
121 ctttttgcag ttcaaaatta tcaagttcct cttttatcag tatatgttca agctgcaaat 420
123 ttacatttat cagtttttgag agatgtttca gtgtttggac aaagggtggg atttgatgcc 480
125 ggcactatca atagtcgtta taatgattta actaggetta ttggcaacta tacagatcat 540
127 gctgtacgct ggtacaatac gggattagag cgtgtatggg gaccggattc tagagattgg 600
129 ataagatata atcaatttag aagagaatta acactaactg tattagatat cgtttctcta 660
131 tttccgaact atgatagtag aacgtatcca attcgaacag tttcccaatt aacaagagaa 720
133 atttatacaa acccagtatt agaaaatttt gatggtagtt ttcgaggctc ggctcagggc 780
135 atagaaggaa gtattaggag tccacatttg atggatatac ttaatagtat aaccatctat 840
137 acggatgctc atagaggaga atattattgg tcagggcatc aaataatggc ttctcctgta 900
139 gggttttcgg ggccagaatt cacttttccg ctatatggaa ctatgggaaa tgcagctcca 960
141 caacaacgta ttgttgctca actagggtcag ggcgtgtata gaacattatc gtcacacctta 1020
143 tatagaagac cttttaatat agggataaat aatcaacaac tatctgttct tgacgggaca 1080
145 gaatttgctt atggaacctc ctcaaatttg ccatccgctg tatacagaaa aagcgggaacg 1140
147 gtagattcgc tggatgaaat accgccacag aataacaacg tgccacctag gcaaggattt 1200
149 agtcacgat taagccatgt ttcaatgttt cgttcaggct ttagtaatag tagtgtaagt 1260
151 ataataagag ctctatggtt ctcttggtata catcgtagtg ctgaatttaa taatataatt 1320
153 ccttcatcac aaattacaca aataccttta acaaaatcta ctaatcttgg ctctggaact 1380
155 tctgtcggtta aaggaccagg atttacagga ggagatattc ttcgaagaac ttcacctggc 1440
157 cagatttcaa ccttaagagt aaatattact gcaccattat cacaaagata tcgggtaaga 1500
159 attcgctacg cttctaccac aaatttacia ttccatacat caattgacgg aagacctatt 1560
161 aatcagggga atttttcagc aactatgagt agtgggagta atttacagtc cggaagcttt 1620
163 aggactgtag gttttactac tccgtttaac ttttcaaag gatcaagtgt atttacgtta 1680
165 agtgctcatg tcttcaattc aggcaatgaa gtttatatag atcgaattga atttgttccg 1740
167 gca 1743

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171 <211> LENGTH: 1845
172 <212> TYPE: DNA
173 <213> ORGANISM: Artificial sequence
175 <220> FEATURE:
176 <223> OTHER INFORMATION: Synthetic sequence encoding Btk HD-1 insecticidal toxin
protein
177     (Cry1Ab), described in Example 2, and set forth in the lower line of
178     Figure 3
180 <400> SEQUENCE: 3
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183 gttgaagtac ttggtggaga acgcattgaa accggttaca ctcccatcga catctccttg      120
185 tccttgacac agtttctgct cagcgagttc gtgccagggtg ctgggttcgt tctcggacta      180
187 gttgacatca tctggggtat ctttgggtcca tctcaatggg atgcattcct ggtgcaaatt      240
189 gagcagttga tcaaccagag gatcgaagag ttccgccagga accaggccat ctctaggttg      300
191 gaaggattga gcaatctcta ccaaattcta gcagagagct tcagagagtg ggaagccgat      360
193 cctactaacc cagctctccg cgaggaaatg cgtattcaat tcaacgacat gaacagcgc      420
195 ttgaccacag ctatcccatt gttcgcagtc cagaactacc aagttcctct cttgtccgtg      480
197 tacgttcaag cagctaattc tcacctcagc gtgcttcgag acgtttagcgt gtttgggcaa      540
199 aggtggggat tcgatgctgc aaccatcaat agccgttaca acgaccttac taggctgatt      600
201 ggaaactaca ccgaccacgc tgttcgttgg tacaacactg gcttggagcg tgtctggggt      660
203 cctgattcta gagattggat tagatacaac cagttcagga gagaattgac cctcacagtt      720
205 ttggacattg tgtctctctt cccgaactat gactccagaa cctaccctat ccgtacagtg      780
207 tcccaactta ccagagaaat ctatactaac ccagttcttg agaacttcga cggtagcttc      840
209 cgtggttctg cccaaggat cgaaggctcc atcaggagcc cacacttgat ggacatcttg      900
211 aacagcataa ctatctacac cgatgctcac agaggagagt attactggtc tggacaccag      960
213 atcatggcct ctccagttgg attcagcggg cccgagttta cctttcctct ctatggaact     1020
215 atgggaaacg ccgctccaca acaacgtatc gttgctcaac taggtcaggg tgtctacaga     1080
217 accttgtctt ccaccttgta cagaagaccc ttcaatatcg gtatcaacaa ccagcaactt     1140
219 tccgttcttg acggaacaga gttcgccctat ggaacctctt ctaacttgcc atccgctgtt     1200
221 tacagaaaga gcggaaccgt tgattccttg gacgaaatcc caccacagaa caacaatgtg     1260
223 ccaccaggcg aaggattctc ccacagggtg agccacgtgt ccatgttccg ttccggattc     1320
225 agcaacagtt ccgtgagcat catcagagct cctatgttct catggattca tcgtagtgtc     1380
227 gagttcaaca atatcattcc ttctctcaa atcacccaaa tccattgac caagtctact     1440
229 aaccttggat ctggaacttc tgtcgtgaaa ggaccaggct tcacaggagg tgatattctt     1500
231 agaagaactt ctcttgcca gattagcacc ctacagagta acatcactgc accactttct     1560
233 caaagatata gtgtcaggat tcgttacgca tctaccacta acttgcaatt ccacacctcc     1620
235 atcgacggaa ggcctatcaa tcagggtaac ttctccgcaa ccatgtcaag cggcagcaac     1680
237 ttgcaatccg gcagcttcag aaccgtcggt ttactactc ctttcaactt ctctaacgga     1740
239 tcaagcgttt tcacccttag cgctcatgtg ttcaattctg gcaatgaagt gtacattgac     1800
241 cgtattgagt ttgtgcctgc cgaagttacc ttcgaggctg agtac      1845
244 <210> SEQ ID NO: 4
245 <211> LENGTH: 1845
246 <212> TYPE: DNA
247 <213> ORGANISM: Artificial sequence
249 <220> FEATURE:
250 <223> OTHER INFORMATION: Native Btk HD1 nucleotide sequence encoding Btk HD-1
insecticidal
251     toxin protein (Cry1Ab), described in Example 2, and set forth in
252     the upper line of Figure 3
254 <400> SEQUENCE: 4

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255 atggataaca atccgaacat caatgaatgc attccttata attgtttaag taaccctgaa      60
257 gtagaagtat taggtggaga aagaatagaa actggttaca cccaatcga tatttccttg      120
259 tcgctaacgc aatttccttt gagtgaattt gttcccggtg ctggatttgt gttaggacta      180
261 gttgatataa tatggggaat ttttggtccc tctcaatggg acgcatttct tgtacaaatt      240
263 gaacagttaa ttaaccaaag aatagaagaa ttcgctagga accaagccat ttctagatta      300
265 gaaggactaa gcaatcttta tcaaatttac gcagaatctt ttagagagtg ggaagcagat      360
267 cctactaatc cagcattaag agaagagatg cgtattcaat tcàatgacat gaacagtgcc      420
269 cttacaaccg ctattcctct ttttgcagtt caaaattatc aagttcctct tttatcagta      480
271 tatgttcaag ctgcaaattt acatttatca gttttgagag atgtttcagt gtttggacaa      540
273 aggtggggat ttgatgccgc gactatcaat agtcggtata atgatttaac taggcttatt      600
275 ggcaactata cagatcatgc tgtacgctgg tacaatacgg gattagagcg tgtatgggga      660
277 cgggattcta gagattggat aagatataat caatttagaa gagaattaac actaactgta      720
279 ttagatatcg tttctctatt tccgaactat gatagtagaa cgtatccaat tcgaacagtt      780
281 tcccaattaa caagagaaat ttatacaaac ccagtattag aaaattttga tggtagtttt      840
283 cgaggctcgg ctcagggcac agaaggaagt attaggagtc cacatttgat ggatatactt      900
285 aatagataaa ccactctatac ggatgctcat agaggagaat attattggtc agggcatcaa      960
287 ataatggctt ctcctgtagg gttttcgggg ccagaattca cttttccgct atatggaact     1020
289 atgggaaatg cagctccaca acaacgtatt gttgctcaac taggtcaggg cgtgtataga     1080
291 acattatcgt ccaccttata tagaagacct tttaatatag ggataaataa tcaacaacta     1140
293 tctgttcttg acgggacaga atttgcttat ggaacctcct caaatttgcc atccgctgta     1200
295 tacagaaaaa gcggaacggt agattcgctg gatgaaatac cgccacagaa taacaacgtg     1260
297 ccacctaggc aaggatttag tcatcgatta agccatgttt caatgtttcg ttcaggcttt     1320
299 agtaatagta gtgtaagtat aataagagct cctatgttct cttggatata tcgtagtgtc     1380
301 gaatttaata atataattcc ttcatacaca attacacaaa tacctttaac aaaatctact     1440
303 aatcttggct ctggaacttc tgtcgttaaa ggaccaggat ttacaggagg agatattctt     1500
305 cgaagaactt cacctggcca gatttcaacc ttaagagtaa atattactgc accattatca     1560
307 caaagatata gggtagaagt tcgctacgct tctaccacaa atttacaatt ccatacatca     1620
309 attgacggaa gacctattaa tcaggggaat ttttcagcaa ctatgagtag tgggagtaat     1680
311 ttacagtccg gaagctttag gactgtaggc tttactactc cgtttaactt ttcaaagga     1740
313 tcaagtgtat ttacgttaag tgctcatgtc ttcaattcag gcaatgaagt ttatatagat     1800
315 cgaattgaat ttgttcgggc agaagtaacc tttgaggcag aatat                          1845

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318 <210> SEQ ID NO: 5

319 <211> LENGTH: 1921

320 <212> TYPE: DNA

321 <213> ORGANISM: Artificial sequence

323 <220> FEATURE:

324 <223> OTHER INFORMATION: Synthetic hybrid of first 1360 bases synthetic HD-1 linked

to

325 modified HD-73 sequence, described in paragraph bridging pages 53-

326 54, and as set forth in the lower line of Figure 4

328 <400> SEQUENCE: 5

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329 atggacaaca acccaaacat caacgaatgc attccataca actgcttgag taaccagaa      60
331 gttgaagtac ttggtggaga acgcattgaa accggttaca ctcccatcga catctccttg      120
333 tccttgacac agtttctgct cagcgagttc gtgccagggt ctgggttcgt tctcggacta      180
335 gttgacatca tctggggtat ctttggtcca tctcaatggg atgcattcct ggtgcaaatt      240
337 gagcagttga tcaaccagag gatcgaagag ttcgccagga accaggccat ctctaggttg      300
339 gaaggattga gcaatctcta ccaaacttat gcagagagct tcagagagtg ggaagccgat      360
341 cctactaacc cagctctccg cgaggaaatg cgtattcaat tcaacgacat gaacagcgcc      420
343 ttgaccacag ctatccattt gttcgcagtc cagaactacc aagttcctct cttgtccgtg      480
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349 ggaaactaca ccgaccacgc tgttcgttgg tacaacactg gcttggagcg tgtctggggg 660
351 cctgattcta gagattggat tagatacaac cagttcagga gagaattgac cctcacagtt 720
353 ttggacattg tgtctctctt cccgaactat gactccagaa cctaccctat ccgtacagtg 780
355 tcccaactta ccagagaaat ctatactaac ccagttcttg agaacttoga cggtagcttc 840
357 cgtgggtctg cccaaggat cgaaggctcc atcaggagcc cacacttgat ggacatcttg 900
359 aacagcataa ctatctacac ccatgctcac agaggagagt attactggtc tggacaccag 960
361 atcatggcct ctccagttgg attcagcggg cccgagttta cctttcctct ctatggaact 1020
363 atgggaaacg ccgctccaca acaacgtatc gttgctcaac taggtcaggg tgtctacaga 1080
365 accttgtctt ccaccttgta cagaagaccc ttcaatatcg gtatcaacaa ccagcaactt 1140
367 tccgttcttg acggaacaga gttcgccctat ggaacctctt ctaacttgcc atccgctggt 1200
369 tacagaaaga gcggaaccgt tgattccttg gacgaaatcc caccacagaa caacaatgtg 1260
371 ccaccacaggc aaggattctc ccacagggtg agccacgtgt ccatgttccg ttccggattc 1320
373 agcaacagtt ccgtgagcat catcagagct cctatgttct cttggataca ccgtagtgt 1380
375 gatttcaaca acatcatcgc atccgatagt attactcaaa tccttgcagt gaagggaaac 1440
377 tttctcttca acggttctgt catttcagga ccaggattca ctggtggaga cctcgtaga 1500
379 ctcaacagca gtggaataaa cattcagaat agaggggata ttgaagttcc aattcacttc 1560
381 ccatccacat ctaccagata tagagttcgt gtgaggtatg cttctgtgac ccctattcac 1620
383 ctcaacgtta attggggtaa ttcatccatc ttctccaata cagttccagc tacagctacc 1680
385 tccttggata atctccaatc cagcgatttc gggtactttg aaagtgccaa tgcctttaca 1740
387 tcttcaactg gtaacatcgt ggggtgttaga aactttagtg ggactgcagg agtgattatc 1800
389 gacagattcg agttcattcc agttactgca acactcgagg ctgaatataa tctggaaaga 1860
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393 g 1921

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396 <210> SEQ ID NO: 6

397 <211> LENGTH: 1921

398 <212> TYPE: DNA

399 <213> ORGANISM: Artificial sequence

401 <220> FEATURE:

402 <223> OTHER INFORMATION: Native Bt nucleotide sequence encoding N-terminal 450 HD-1

(Cry1Ab)

403 amino acids and 451-615 of Bkt HD73 (Cry1Ac) described in Example 3
 404 and as set forth in the upper line of Figure 4

406 <400> SEQUENCE: 6

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407 atggataaca atccgaacat caatgaatgc attccttata attgtttaag taaccctgaa 60
409 gtagaagtat taggtggaga aagaatagaa actgggtaca cccaatcga tatttccttg 120
411 tcgctaacgc aatttctttt gagtgaattt gttcccggtg ctggatttgt gttaggacta 180
413 gttgatataa tatggggaat ttttggtccc tctcaatggg acgcatttct tgtacaaatt 240
415 gaacagttaa ttaaccaaag aatagaagaa ttcgctagga accaagccat ttctagatta 300
417 gaaggactaa gcaatcttta tcaaatttac gcagaatctt ttagagagtg ggaagcagat 360
419 cctactaatc cagcattaag agaagagatg cgtattcaat tcaatgacat gaacagtgcc 420
421 cttacaaccg ctattcctct ttttgcagtt caaaattatc aagttcctct tttatcagta 480
423 tatgttcaag ctgcaaatat acatttatca gttttgagag atgtttcagt gtttggacaa 540
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427 ggcaactata cagatcatgc tgtacgctgg tacaatacgg gattagagcg tgtatgggga 660
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431 ttagatatcg tttctctatt tccgaactat gatagtagaa cgtatccaat tcgaacagtt 780
433 tcccaattaa caagagaaat ttatacaaac ccagtattag aaaattttga tggtagtttt 840
435 cgaggctcgg ctcagggcag agaaggaagt attaggagtc cacatttgat ggatatactt 900
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L:1913 M:220 C: Keyword misspelled or invalid format, <213> ORGANISM for SEQ ID#:23